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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

WANG-HURST, KATHY W

ART UNIT

PAPER NUMBER

2617

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/577,671	<b>Applicant(s)</b> LI, HUI	
	<b>Examiner</b> KATHY WANG-HURST	<b>Art Unit</b> 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 May 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 19-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 19-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

Applicant's amendment filed on 5/13/2009 has been entered. Claims 19-38 are still pending in this application.

### ***Response to Arguments***

The examiner acknowledges the applicants request to show support for the rejection in the provisional application which is the prior art. The claim rejection section of this office action reflects the showing of support from the provisional application.

In addition, the examiner contends that a rejection based on 35 USC 102(e) can be overcome by perfecting a claim to priority under 35 USC 119(a)-(d). The foreign priority filing date must antedate the reference and be perfected. The filing date of the priority document is not perfected unless applicant has filed a certified priority document in the application and an English language translation, if the document is not in English, and the examiner has established that the priority document satisfies the enablement and description requirements of 35 USC 112, first paragraph.

Applicant's arguments filed have been fully considered but they are not persuasive.

Terry discusses exchanging messages to determine channel condition before data is transmitted on the selected channel. Franci discusses dividing a frequency band into sub-channels, sending messages to determine sub-channels capacity, and transmitting data on the selected sub-channels based on the determination. Therefore the combination of Terry and Franci teaches the limitations of "dividing a frequency

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band into a plurality of sub-bands for communicating between the radio stations in the ad-hoc mode, wherein the first radio station is assigned one or more first sub-bands and the second radio station is assigned one or more second sub-bands; and sending a notification from the first radio station relating to the intended data transmission to the second radio station, the notification being sent only on one or more sub-bands selected from the group consisting of the one or more first sub-bands and the one or more second sub-bands”.

Concerning the applicants arguments regarding combination of references, both of the references are from the same field, i.e. communication systems and concern analogous topics. Therefore, the examiner contends that the references would be combinable to one skilled in the art.

Therefore, the argued limitations read upon the cited references or are written broad such that they read upon the cited references, as follow.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 19-38 rejected under 35 U.S.C. 103(a) as being unpatentable over Terry (US 2004/0196871 which claims priority of its US provisional application No. 60/460553) in view of Francl et al. (US 2003/0060204). Note that the claims are mapped based on the provisional application, per applicant's request.

Regarding claim 19, Terry discloses a method for signaling relating to an intended data transmission from a first radio station to a second radio station in an ad-hoc mode of a radio communication system (see e.g. [0002][0017] [0020] sending intended data between stations in a 802.11 network), comprising: having a plurality of sub-bands for communicating between the radio stations in the ad-hoc mode, wherein the first radio station uses one or more first sub-bands and the second radio station uses one or more second sub-bands (see at least [0020] and Table 1, sending data using different data rates therefore different bands); and sending a notification from the first radio station relating to the intended data transmission to the second radio station, the notification being sent only on one or more sub-bands selected from the group consisting of the one or more first sub-bands and the one or more second sub-bands ([0020] and Fig. 3, sending control messages such as RTS and CTS to detect channel condition before transmitting data).

Terry discloses having a channel and radio stations using a channel to transmit data but does not specifically disclose dividing a frequency band into a plurality of sub-bands for communicating between the radio stations in the ad-hoc mode, wherein the first radio station uses one or more first sub-bands and the second radio station is assigned one or more second sub-bands. Franci teaches dividing a frequency band into a plurality of sub-bands for communicating between the radio stations in the ad-hoc mode, wherein the first radio station uses one or more first sub-bands and the second radio station is assigned one or more second sub-bands (see at least Fig. 3, dividing frequency band into sub-bands and [0014][0017] assigning sub-bands).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the invention of Terry, to divide frequency band into sub-bands and assign each station channels that the station is allowed to transmit data, as taught by Franci, thus allowing a more organized and efficient way of allocating channels ([0005]-[0007]).

Regarding claim 25, Terry discloses a method for signaling relating to an intended data transmission from a first radio station to a second radio station in an ad-hoc mode of a radio communication system, comprising:  
having a plurality of sub-bands for communication between the radio stations in the ad-hoc mode, wherein the first radio station uses one or more first sub-bands and the second radio station uses one or more second sub-bands (see at least [0020] and Table 1, sending data using different data rates therefore different bands); receiving a notification at the second radio station from the first radio station relating to the intended data transmission from the first radio station to the second radio station ([0020] and Fig. 3, exchanging control messages such as RTS and CTS to detect channel condition before transmitting data); and after receiving the notification, sending an acknowledgement from the second radio station to the first radio station to acknowledge the intended data transmission ([0020] and Fig. 3, sending acknowledgement), the acknowledgement being sent only on one or more sub-bands selected from the group consisting of one or more first sub-bands and one or more second sub-bands ([0020]).

Terry discloses having a channel and radio stations using a channel to transmit data but does not specifically disclose dividing a frequency band into a plurality of sub-

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bands for communicating between the radio stations in the ad-hoc mode, wherein the first radio station uses one or more first sub-bands and the second radio station is assigned one or more second sub-bands. Franci teaches dividing a frequency band into a plurality of sub-bands for communicating between the radio stations in the ad-hoc mode, wherein the first radio station uses one or more first sub-bands and the second radio station is assigned one or more second sub-bands (see at least Fig. 3, dividing frequency band into sub-bands and [0014][0017] assigning sub-bands).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the invention of Terry, to divide frequency band into sub-bands and assign each station channels that the station is allowed to transmit data, as taught by Franci, thus allowing a more organized and efficient way of allocating channels ([0005]-[0007]).

Regarding claim 29, Terry discloses a method for signaling relating to an intended data transmission from a first radio station to a second radio station in an ad-hoc mode of a radio communication system, comprising: having a plurality of sub-bands for communicating between the radio stations in the ad-hoc mode, wherein the first radio station uses one or more first sub-bands and the second radio station uses one or more second sub-bands (see at least [0020] and Table 1, sending data using different data rates therefore different bands); and sending a notification from the first radio station relating to the intended data transmission to the second radio station([0020] and Fig. 3, sending control messages such as RTS and CTS to detect channel condition before transmitting data);

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receiving a notification at the second radio station from the first radio station relating to the intended data transmission from the first radio station to the second radio station ([0020] and Fig. 3, exchanging control messages between two stations); and after receiving the notification, sending an acknowledgement from the second radio station to the first radio station to acknowledge the intended data transmission ([0020] and Fig. 3, sending acknowledgement), the acknowledgement being sent only on one or more sub-bands selected from the group consisting of one or more first sub-bands and one or more second sub-bands ([0020]).

Terry discloses having a channel and radio stations using a channel to transmit data but does not specifically disclose dividing a frequency band into a plurality of sub-bands for communicating between the radio stations in the ad-hoc mode, wherein the first radio station uses one or more first sub-bands and the second radio station is assigned one or more second sub-bands. Franci teaches dividing a frequency band into a plurality of sub-bands for communicating between the radio stations in the ad-hoc mode, wherein the first radio station uses one or more first sub-bands and the second radio station is assigned one or more second sub-bands (see at least Fig. 3, dividing frequency band into sub-bands and [0014][0017] assigning sub-bands).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the invention of Terry, to divide frequency band into sub-bands and assign each station channels that the station is allowed to transmit data, as taught by Franci, thus allowing a more organized and efficient way of allocating channels ([0005]-[0007]).



Regarding claim 33 and 35, combination of Terry and Franci discloses radio stations exchanging network messages on assigned sub-channels and information of assigned sub-channel is stored in memories.

Regarding claim 37, Terry discloses a computer readable storage medium containing a computer program to control a computer to perform a process for a first radio station in an ad-hoc mode of a radio communication system, the process comprising: selecting one or more sub-bands which will be used for sending([0020]), to a second radio station, a notification of an intended data transmission from the first radio station to the second radio station ([0020] and Fig. 3), said selection being made from one or more first sub-bands which have been used by the first radio station for communicating and/or from one or more second sub-bands which have been used by the second radio station for communicating ([0020] and Table 1).

Terry discloses having a channel and radio stations using a channel to transmit data but does not specifically disclose dividing a frequency band into a plurality of sub-bands for communicating between the radio stations in the ad-hoc mode, wherein the first radio station uses one or more first sub-bands and the second radio station is assigned one or more second sub-bands. Franci teaches dividing a frequency band into a plurality of sub-bands for communicating between the radio stations in the ad-hoc mode, wherein the first radio station uses one or more first sub-bands and the second radio station is assigned one or more second sub-bands (see at least Fig. 3, dividing frequency band into sub-bands and [0014][0017] assigning sub-bands).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the invention of Terry, to divide frequency band into sub-bands and assign each station channels that the station is allowed to transmit data, as taught by Franci, thus allowing a more organized and efficient way of allocating channels ([0005]-[0007]).

Regarding claims 20-24, 26-28, 32, 34 36, combination of Terry and Franci discloses the station detecting and determining the capacity/ occupancy of the sub-channels and transmit data including messages such as CTS and acknowledgement based on the detected the capacities of sub-channels.

Regarding claims 30-31, Terry discloses exchanging notification and acknowledgement messages between two station on a channel ([0020]), but does not specifically disclose dividing a frequency band into a plurality of sub-bands for communicating between the radio stations in the ad-hoc mode, wherein the first radio station uses one or more first sub-bands and the second radio station is assigned one or more second sub-bands. Franci teaches dividing a frequency band into a plurality of sub-bands for communicating between the radio stations in the ad-hoc mode, wherein the first radio station uses one or more first sub-bands and the second radio station is assigned one or more second sub-bands (see at least Fig. 3, dividing frequency band into sub-bands and [0014][0017] assigning sub-bands).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the invention of Terry, to divide frequency band into sub-bands and assign each station channels that the station is allowed to

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transmit data, as taught by Franci, thus allowing a more organized and efficient way of allocating channels ([0005]-[0007]).

Regarding claim 38, Terry discloses a computer readable storage medium containing a computer program to control a computer to perform a process for a second radio station in an ad-hoc mode of a radio communication system, the process comprising: selecting one or more sub-bands which will be used for sending([0020]), to a first radio station, an acknowledgement of an intended data transmission from the first radio station to the second radio station([0020] and Fig. 3), the acknowledgment being sent from the second radio station to the first radio station([0020] and Fig. 3, sending acknowledgement).

Terry discloses having a channel and radio stations using a channel to transmit data but does not specifically disclose dividing a frequency band into a plurality of sub-bands for communicating between the radio stations in the ad-hoc mode, wherein the first radio station uses one or more first sub-bands and the second radio station is assigned one or more second sub-bands. Franci teaches dividing a frequency band into a plurality of sub-bands for communicating between the radio stations in the ad-hoc mode, wherein the first radio station uses one or more first sub-bands and the second radio station is assigned one or more second sub-bands (see at least Fig. 3, dividing frequency band into sub-bands and [0014][0017] assigning sub-bands).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the invention of Terry, to divide frequency band into sub-bands and assign each station channels that the station is allowed to

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transmit data, as taught by Francl, thus allowing a more organized and efficient way of allocating channels ([0005]-[0007]).

### ***Conclusion***

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KATHY WANG-HURST whose telephone number is (571) 270-5371. The examiner can normally be reached on Monday-Thursday, 7:30am-5pm, alternate Fridays, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nick Corsaro can be reached on (571) 272-7876. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KATHY WANG-HURST/  
Examiner, Art Unit 2617

/NICK CORSARO/  
Supervisory Patent Examiner, Art Unit 2617